



UNITED STATES NAVY

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Policy

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* * * * *

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

* * * * *

The issuance of this publication approved by the Secretary of the Navy on 28 June 1961.

Candida Endocarditis *

Clinical and Pathologic Studies

V.T. Andriole (1), H.M. Kravetz (2), W.C. Roberts, and J.P. Utz.
Amer J Med 32: 251-285, February 1962.

The prevalence of mycotic endocarditis, once considered an uncommon clinical and pathologic entity, seems to have increased during the past decade. Wider use of cultural methods, an improved system of classification, and a greater clinical awareness suggest that this increase may be more apparent than real. Nevertheless, the development of many cases in the course of intensive antibiotic and steroid therapy and its occurrence as a complication of cardiac surgery provide evidence of a real increase in the frequency of the illness.

One must differentiate between endocarditis caused by "higher bacteria" which belong (in addition to the common bacteria) to the class schizomycetes and endocarditis caused by the true fungi, or eumycetes. Present methods of classification place the following etiologic agents of endocarditis in the class schizomycetes: *Actinomyces bovis*, *A. graminis*, *A. septicus*, *Nocardia asteroides*, *leptothrix*, *Streptobacillus monilliformis*, *Erysipelothrix rhusiopathiae*, diphtheroids, *Listeria monocytogenes*, and *Actinobacillus lignieresii*, whereas the following agents are considered eumycetes: *Aspergillus flavus*, *A. fumigatus*, *Blastomyces dermatitidis*, *Candida albicans*, *C. guilliermondii*, *C. krusei*, *C. parapsilosis* (*parakrusei*), *C. tropicalis*, *Coccidioides immitis*, *Cryptococcus neoformans*, *Histoplasma capsulatum*, and *mucor* species.

Candida can be isolated so frequently from the stools, vagina, and throats of apparently healthy persons that their pathogenicity and relation to diseases have been difficult to establish. The adequately documented cases of candida endocarditis now total twenty-one. Of these, *C. albicans* was responsible for seven, *C. parapsilosis* (*parakrusei*) for six, *C. guilliermondii* for four, *C. krusei* and *C. tropicalis* for one each; in two cases, the species was not identified. A clinical picture consistent with endocarditis, with blood cultures positive for candida (in the absence of the isolation of a more common etiologic agent) or an adequate description of the valvular vegetations and fungus, are accepted as evidence of candida endocarditis. Several case reports which do not fulfill these criteria have been omitted.

Associated drug therapy and specific debilitating illnesses are predisposing factors to candida endocarditis. Prolonged antibiotic, steroid, roentgen radiation, and bone marrow depressant therapy are known to enhance candida infections; hypocalcemia and negative nitrogen balance may also be adverse factors. Insulin administration (in diabetic subjects), surgery (in patients with rheumatic heart disease), intravenous antibiotic therapy, and self administration of narcotics seem to have served as specific portals of entry in candida endocarditis.

Fever, chills, anorexia, nausea, vomiting, abdominal pain, and heart failure (in patients who may have had previous rheumatic heart disease or in

whom recent cardiac murmurs have developed), hepatosplenomegaly, petechiae, splinter hemorrhages, Osler's nodes, or large vessel embolism represent the most common clinical features of the disease. The principal clinical difference between candida endocarditis and bacterial endocarditis is the occurrence of large vessel embolism, a reflection of the large size of mycotic vegetations. An elevated erythrocyte sedimentation rate, anemia, leukocytosis or leukopenia, hematuria, pyuria, proteinuria, and cylindruria were frequent laboratory observations. Fungemia was repeatedly demonstrated.

The approximate duration of illness ranged from two to seventy-one weeks with a median of thirteen and a mean of seventeen weeks. The patients receiving intense antifungal therapy survived longer than the untreated, regardless of the known relative pathogenicity of the species of candida.

Treatment with intravenously administered amphotericin B, which is effective in reducing the colony count and clearing the blood stream of candida organisms, transiently modified the course of candida endocarditis. Serum concentrations of amphotericin B, which exceed those necessary to inhibit the growth of candida, can be attained by intravenous administration of the drug. The use of larger doses of amphotericin B for longer periods of uninterrupted therapy is suggested until more effective therapy is discovered. The prognosis of candida endocarditis must presently be considered to be uniformly fatal.

Addendum

Since the submission of this manuscript, other cases of Candida endocarditis continue to be reported. The most notable of these is that of Kay and others who describe the first case in which the patient was ever cured, in this instance by the surgical removal of the infected portion of the tricuspid valve.

Acknowledgement: The authors remark that they are indebted to CAPT Melvin D. Cheitlin MC USA, and CAPT Edward Kamin MC USA for their assistance in the study of one of the patients described, and to Miss Margaret Huber for her technical assistance.

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Rupture of the Normal Stomach During Oxygen
Therapy by Nasal Catheter

Arturo Longobardi, David W. Ruggles, and Alex M. Burgess, Providence,
R. I. Ann Int Med 55: 1014-1015, December 1961.

Rupture of the normal stomach due to sudden distention during oxygen therapy by insufflation through a nasal catheter is a rare but tragic occurrence. The patients receiving this type of treatment are, of course, suffering from a serious condition or the use of oxygen would not be indicated. The tear in the stomach or esophagus with sudden severe distention of the abdomen with oxygen and leakage of stomach contents may well be more than the ailing individual can tolerate as was the case in two of the three instances reported in this article. Three similar cases have recently been published (1).

When properly applied, the method of oxygen administration originally described by Wineland and Waters in 1931 (2) involves use of a well lubricated catheter, the tip of which lies in the oropharynx. This insures the inhalation of oxygen-rich air with every inspiration whether the patient breathes through the mouth or the nose.

The method is simple and reliable, but is by no means fool-proof. Leaks often occur in the system so that a patient may, in fact, be receiving no oxygen whatever despite the fact that there is active bubbling in the bottle used to moisten the oxygen. The catheter must be firmly fixed in position. Ordinarily, a properly positioned catheter is visible just opposite the uvula. It has been routine to check its position before turning on the flow of oxygen. A flow of four to six liters per minute is well tolerated, as a rule, and results in a sufficient increase in the partial pressure of oxygen in the alveolar air so as to be therapeutically valuable where really high concentrations of oxygen are not needed.

As usually applied, the catheter, after being properly placed with its tip at the level of the tip of the uvula, is fastened to the nose or upper lip by adhesive plaster. It should be removed, cleaned, and reapplied every 6 to 8 hours. When this is done and the catheter is reinserted and not properly fixed in position, it is quite possible for it to slip further into the nose than is intended and to enter the esophagus. The result is that the stomach is rapidly dilated with oxygen if the flow has been started. Ordinarily, this is not serious, but in some instances like those reported here, rupture of the stomach wall can occur with disastrous results.

The three patients who have come to the authors' attention were elderly women aged 69, 63, and 86 years. The first was suffering from epidermoid carcinoma with metastases and was given oxygen by nasal catheter after extensive axillary dissection. At the end of an hour and a half, it was found that her abdomen was markedly distended and her pulse weak and irregular. She was operated upon, and there was a free escape of gas when the peritoneal cavity was entered. No perforation was found at operation, but 5 days later the patient died. At autopsy a "recent sealed gastric perforation" was

discovered. There was no peritonitis. The tear in the mucous membrane was slit-like and 5.5 centimeters in length. It perforated the muscularis at one end; this perforation was sealed by the lesser omentum. The tear was located about 8 centimeters from the pylorus on the greater curvature. The autopsy showed arteriosclerotic heart disease with old and fresh myocardial infarcts and chronic pyelonephritis with lithiasis.

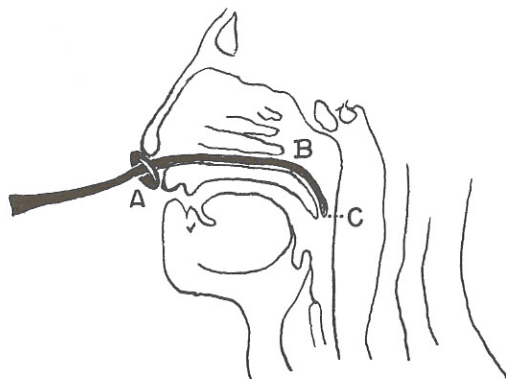
The second patient, 63 years of age, received oxygen because of an acute attack which was, in fact, due to a massive pulmonary embolism and was so diagnosed.

About 2 hours after the oxygen was started, it was found that her abdomen was "hard and distended." She died 2 hours later. The cause of death was certainly the massive embolism, but a "recent laceration of the stomach wall and free gas in the abdominal cavity" were noted at postmortem. The laceration was about 4 centimeters in length and was located in the region of the greater curvature slightly nearer the pylorus than the cardia.

In the third instance, the patient, aged 86, was recovering in satisfactory fashion from an attack of congestive failure. Oxygen was administered by nasal catheter at 4 liters per minute. The catheter was removed when the patient was fed and was reinserted afterward. A "minute or two" later she cried out with pain and became cyanotic. It was found that her abdomen was "board-like," and there was evidence of subcutaneous gas in the upper thoracic area and the neck. X rays showed an extensive pneumoperitoneum. She was operated on, and at the junction of the esophagus and stomach on the right side there was "a rent in the esophagus" at least an inch in length, and a continuation of the rent into the stomach about half an inch long. This was repaired. This patient died about 20 minutes after completion of the operation.

These tragic episodes illustrate the danger of sudden gaseous distention of the stomach that can occur if the catheter becomes inserted too far and enters the esophagus. The writers believe that markers on the catheter that may indicate, but do not prevent, this deep insertion of the catheter are not sufficient safeguard to the patient. They have, therefore, devised a catheter which has a disc attached which prevents the catheter from entering the nose beyond the required distance.

Their studies of adults with small, average, and large heads have shown that the distance from the external nares to the tip of the uvula varies from 12 to 14 centimeters. Estimations on the cadaver indicate that the area in which the perforated tip of the catheter should lie is about 3.5 centimeters in length. Thus, a catheter with the disc located 12 to 12.5 centimeters from its tip and inserted until the disc impinges on the nose and upper lip will be correctly located, and accidental intubation of the esophagus will be prevented.



Nasopharyngeal area with catheter in place.
A = disc; A-C = 12 to 14 centimeters;
B-C = 3 to 3.5 centimeters.

If the disc is made with the central hole small enough to fit tightly on the catheter, it is impossible to move it without stretching the catheter to decrease its circumference. This is preferable to having the disc cemented in position, and allows for changing its location as needed.

The authors believe that the use of a catheter of this type will be the means of preventing serious consequences, such as they have described, which can result from the insertion of the catheter into the esophagus and the sudden distention of the stomach with oxygen.

References:

1. Walstad, P.M., Conklin, W.S.: Rupture of the normal stomach after therapeutic oxygen administration: report of three cases. *New Engl J Med* 264: 1201, 1961.
2. Wineland, A.J., Waters, R.M.: Oxygen therapy: insufflation into oral pharynx. *Arch Surg* 22: 67, 1931.

* * * * *

ORIGINAL ARTICLES

I. The Armed Forces Pest Control Board

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PrevMedDiv, BuMed, Washington 25, D.C.

On 17 November 1956, the Secretary of Defense issued a directive establishing the Armed Forces Pest Control Board. (DOD Directive 5154.12). This Board functions as a joint agency of the three military departments under the management control of the Secretary of the Army, subject to the authority, direction, and control of the Secretary of Defense.

The functions and responsibilities of the Board under established Department of Defense policies are to:

1. Coordinate research and development of pest control requirements within the Department of Defense and, where indicated, transmit such requirements to other agencies.
2. Serve as a consultant body to the military departments on technical aspects of:
 - a. Prevention of arthropod-borne diseases and the control of arthropod and rodent vectors and reservoirs of disease.
 - b. Prevention of damage to property and material by insects, rodents, and other destructive and obnoxious pests.
 - c. Elimination of pests on military aircraft, ships, and vehicles for which quarantine regulations are established.
3. Review progress on research and development activities relating to pests of military importance conducted by the military departments (inservice and contract), and by other governmental and civilian agencies, and provide for the interchange of information concerning such activities.

Under established policies of the Army, Navy, and Air Force, other functions of the Board implementing the above are:

1. Survey present and future requirements and make recommendations to the military departments for initiating and accomplishing research and development, training, and operational technics to improve military readiness and efficiency.

2. Coordinate projects for development and standardization of pest control publications, training, equipment, and materials. Review initial test and program agenda and make recommendations concerning modifications during the progress of projects in order to assure that the interests of all agencies are considered. Expedite concurrence with standardization action or final reports on items and programs developed.

Officers of the Board include a Chairman, Vice Chairman, and an Executive Secretary. The Chairman and Vice Chairman are elected by the Board for a two-year term. The Executive Secretary is an officer of the Army, Navy, or Air Force appointed for a period of four years on a rotating basis by the Secretary of the Army based on nominations received from the Surgeons General of the Army, Navy, and Air Force, and approved by the Board.

Membership is by appointment of not more than five members and five alternates each from the Army, Navy, and Air Force representing those agencies which are responsible for the pest control research, and operational and logistic policies of the departments. Navy membership includes representation from the Office of Naval Research, and the Bureaus of Medicine and Surgery, Ships, Yards and Docks, and Supplies and Accounts. In addition, provision is made for representation from the U.S. Marine Corps. Any military field agency may be invited, after Board approval, to designate a representative of the agency to receive notices and minutes regularly, to participate in discussions, and to serve on committee and work groups as desired. Other agencies with related interests may be invited to designate liaison members after approval by the Board.

Meetings are called by the Chairman, following coordination with members and the Executive Secretary, with the stipulation that there be not less than four per year. Current officers of the Board are:

CAPT Richard T. Holway MSC USN, Executive Secretary
Forest Glen Section
Walter Reed Army Medical Center
Washington 12, D. C.

COL Joseph E. Webb MSC USA, Chairman
Office of the Surgeon General, U.S. Army
Main Navy Building
Washington 25, D. C.

CAPT Frank H. Dowell MSC USAF, Vice Chairman
4500th Operations Squadron
Langley Air Force Base, Virginia

* * * * *

II. Tuberculosis Screening in a Prenatal Clinic

LCDR J. W. Ledwith MC USN, Tuberculosis Service, U.S.
Naval Hospital, St. Albans, N. Y.

Screening for tuberculosis in a busy prenatal clinic remains a necessity in present day obstetrical practice. In a recent study at New York Lying-in-Hospital the incidence of pulmonary tuberculosis found in patients delivered from 1952 through 1956 was approximately 2%. This incidence was not much lower than that found during a similar analysis covering the years 1933 through 1951. (G. Schaefer, J. A. M. A. 165:2163, December 28, 1957)

At U.S. Naval Hospital, St. Albans, N. Y., a study was planned in 1960 that would obviate taking chest X rays on all patients enrolled in the prenatal clinic as a check for tuberculosis. Rather, it was proposed to give tuberculin skin tests to all prenatal registrants (using PPD-S intermediate strength, 5 T. U.) and to X-ray only positive reactors.

Such a program was not without problems since it required two clinic visits for each patient within a 2 to 3-day period. Also it was possible that other chest conditions might be missed in patients with negative tuberculin reactions who would thereby not receive chest X rays.

Analysis of results to date have shown that the program is adequately effective as a tuberculosis screening procedure. A total of 1875 prenatal patients have been tested during the period February 1960 through January 1962 (24 months).

Results of skin tests:

Negative reaction	1320	
Positive reaction	289	(18%)
Total reading	1609	
Did not return for reading	266	(16%)
	1875	

Results of chest X ray on positive reactors:

Chest X-ray negative	240	(83.1%)
Healed Primary complex	42	(14.5%)
Pulmonary infiltrate	7*	(2.4%)
	289	

Thus, in this predominantly young adult female population, the incidence of positive reactors was 18%. Chest X rays were thereby required in only about one-fifth of the patients seen in the prenatal clinic. Over 1500 patients have been delivered to date, and no further cases of tuberculosis have been reported. Two additional cases of active pulmonary tuberculosis in prenatal registrants were hospitalized during this period. They are not included in the above data because they presented at their first clinic visit with symptoms which required diagnostic studies. * Active tuberculosis was diagnosed in one of these patients.

NOTE: The author states that "acknowledgement is gratefully given to LT Joseph T. Karr MSC USN, and to the Data Processing Center, St. Albans Naval Hospital, for processing this data." It is gratifying to note the ever increasing utilization of data processing facilities and personnel in clinical studies and research in U.S. Naval Hospitals. —Editor

* * * * *

Recent Trends in the Quarantinable Diseases

Committee on International Quarantine, World Health Organization.
WHO Chronicle 16:51-54, February 1962.

It is difficult to obtain a complete picture of the present extent of the quarantinable diseases since the reliability of the data varies from country to country and the most recent returns are provisional. Nevertheless, certain trends are detectable from a review of the incidence of these diseases during recent years submitted to the Committee on International Quarantine in November '61.

Plague

The incidence of human plague has notably decreased in recent decades, even in those countries where it remains endemic. This is strikingly illustrated in the case of India where the average annual mortality from plague declined from 548,400 in the years 1898 - 1908 to 6300 in the years 1949 - 1958. According to provisional data, there were 412 cases in the whole world in 1960; 256 of these occurred in South America, 2 in the United States, and the remainder in various Afro-Asian countries.

**TABLE 1. PLAGUE CASES AND DEATHS
RECORDED IN ASIA, 1955-60**

		1955	1956	1957	1958	1959	1960
Burma	C	203	273	227	76	108	22
	D	98	178	102	33	34	14
India	D	231	243	167	247	12	26
Indonesia	C	354	113	17	0	18	5
	D	61	28	7	0	15	4
Viet-Nam	C	1	34	3	15	0	14
	D	1	9	1	2	0	1

C = cases. D = deaths.

**TABLE 2. PLAGUE CASES AND DEATHS
RECORDED IN THE CONGO (LEOPOLDVILLE),
KENYA, AND MADAGASCAR, 1955-60**

		1955	1956	1957	1958	1959	1960
Congo (Leopoldville)	C	25	22	35	8	12	26
	D	22	20	30	6	12	25
Kenya	C	27	7	15	19	12	2
	D	9	1	1 ^a	4 ^a	1 ^a	1
Madagascar	C	17	20	57	21	5	6
	D	13	11	48	16	3	3

C = cases. D = deaths. ^a In hospital.

In Asia the mortality from plague is generally declining. The extent of the decline is even more obvious when it is considered that plague deaths in Burma in 1948 numbered 1325 as against 14 reported in 1960; while there were 2841

deaths in Indonesia in 1950 compared with only 15 in 1959. Cambodia, Laos, and the Philippines seem to have been free of the disease for some years. The story is incomplete in the absence of any official data for continental China since 1951; but apart from the countries listed in Table 1, no plague deaths have been reported from any Asian country during the last 2 years.

In Africa the trend is similar. Table 2 gives the annual numbers of cases and deaths for the Congo (Leopoldville), Kenya, and Madagascar in the years 1955 - 1960. Plague deaths in Madagascar fell from 191 in 1948 to 3 in 1960; in Tanganyika from 178 in 1948 to nil since 1958. No plague deaths are known to have occurred in 1960 in any African countries or territories apart from those listed in Table 2. There is a small number of cases in South Africa each year.

It is not, perhaps, generally realized how large a proportion of plague cases occurs in South America: most of these are in Bolivia, Brazil, Ecuador, and Peru. This is in marked contrast with the United States where only a very few cases of (sylvatic) plague occur occasionally, usually in New Mexico (see Table 3).

TABLE 3. PLAGUE CASES RECORDED IN FIVE AMERICAN COUNTRIES, 1955-60

	1955	1956	1957	1958	1959	1960
Bolivia	45	3	—	—	—	12
Brazil	27	4	37	25	16	28
Ecuador	85 ^a	80	76	16	40	77
Peru	8	24	37	49	33	139
USA	—	1	1	—	4	2

^a Deaths only.

TABLE 4. DEATHS FROM CHOLERA RECORDED IN FIVE ASIAN COUNTRIES, 1955-60

	1955	1956	1957	1958	1959	1960
Afghanistan	—	—	—	—	—	199
Burma	13	6	20	5	2	200
India	14 016	25 012	52 078	50 180	5 372	5 799
Pakistan	14 096	18 471	7 002	10 623	12 735	6 608
Thailand	—	—	—	1 747	625	—

Plague has made only fleeting appearances in Europe since its disappearance from Turkey in 1841; a few cases occurred in Italy and Corsica in 1945, in Malta in 1945 - 1946, and in the Azores between 1942 and 1949.

In Oceania, there has been no case in Australia since 1924, or in Hawaii since 1949.

Rodent plague was reported from the Congo in 1960 and, as an epizootic, from Venezuela in January 1961; but notifications are necessarily incomplete and the extent of foci of the disease among wild rodents is not well known. For this reason, plague has always to be regarded as a potentially serious danger; however, no port or airport used for international traffic has reported a human case since 1958.

Cholera

While cholera has not been seen in the Americas since 1911, or in Europe since 1923, it remains a serious problem in Asia (see Table 4). Recent

epidemics in South-East Asia include those of 1958 - 1959 in Thailand, and of 1960 in Afghanistan, Burma, and West Pakistan. In India and Pakistan since 1923 the annual total of deaths has surpassed 100,000 on 18 occasions, the worst year being 1943 with 460,000 deaths. Nevertheless, there has been a long-term decrease of mortality in these countries—from an average of 164,000 deaths per year in 1945 - 1949 to 12,500 in 1960 (provisional data).

In 1960 cholera appeared outside its traditional foci in India and East Pakistan, affecting Jammu and Kashmir in the north, West Pakistan, and Afghanistan in the west, and Burma in the east. Several scores of deaths occurred in Nepal. In the first 6 months of 1961 there was a serious recrudescence in West Bengal (1422 deaths), but no deaths were recorded in West Pakistan, and only one death in Burma. Afghanistan, Cambodia, and Thailand appear to have remained unaffected by the disease. Thus, the immediate outlook regarding cholera in South and East Asia is favorable, although case reports from Hong Kong, Macao, and Sarawak during the latter half of 1961 suggest that the disease may be able to establish endemic foci in new territories, and that the old foci in continental China may not be altogether extinct. In late 1960 and early 1961 outbreaks of infection due to the El Tor vibrio caused some 150 deaths in the Celebes; others were reported in Central Java and the Philippines; but strict international quarantine measures are not applicable to this form of "para-cholera."

Yellow Fever

In Africa neither the morbidity nor the mortality statistics give an accurate picture of the extent of yellow fever because of the frequency of mild cases, the difficulties of diagnosis, and the paucity of medical services. Very approximate figures for deaths during the period 1921 - 1960 are as follows: territories of former French Equatorial Africa, 25; territories of former French West Africa, 500; Ghana, 270; and Nigeria, 100. In the Congo (Leopoldville) there were 85 deaths between 1940 and 1960. Between 1955 and 1960 most African countries returned only an odd case here and there; only the Congo (Leopoldville) regularly reported new cases each year, the highest figure being 60 cases (23 deaths) in 1958.

Special mention must be made of recent developments in Ethiopia. In the Maji area of Kaffa Province—where a survey in 1953 - 1954 had proved the absence of yellow fever antibody—there was a severe epidemic of unknown extent in 1959. A second epidemic in November of the same year affected both sides of the Sudan frontier zone, causing some 100 deaths in Ethiopia and a similar number in the Blue Nile (Kurmuk and Er Roseires) and Upper Nile provinces of the adjacent Sudan before it was halted by the end of the rainy season. In February 1961 cases were reported from the southwest of the country, near the Kenya border. Investigation revealed that there had been two waves of infection in late 1959 and late 1960 in the Dime and Kouré areas, respectively, killing some 3000 - 8000 persons (up to 10% of the population). The disease continues to spread north along the Omo River.

In the Americas the data for yellow fever for 1959 and 1960, and even for earlier years, are still incomplete. Of the cases notified during the period 1955 - 1960, 161 were in Colombia, 63 in Bolivia, 52 in Brazil, 23 in Venezuela, and 16 in Peru. Cases also occurred in Ecuador, Honduras, Panama, and Trinidad.

Smallpox

Apart from a few very minor outbreaks arising from imported cases, smallpox disappeared during the first half of this century from Europe, North America, Costa Rica, and El Salvador; and it became very rare in a number of African and Asian countries—among them Israel, Madagascar, and Mauritius. There has been a parallel regression in Argentina, Chile, Guatemala, Mexico, Uruguay, and Venezuela; and in Ceylon, Japan, and the Philippines. The disease has never been endemic in Australia.

The world total of reported cases fell from 490,000 in 1951 to less than 60,000 in 1960; but the situation is less encouraging than these figures appear to warrant. When the mortality is low, variola major is often confused with variola minor, or even with varicella. India and Pakistan are sometimes responsible for nearly 90% of the annual totals, and 1951 was an epidemic year in those countries (168,000 deaths in India, 32,800 in Pakistan). It was also an epidemic year in Indonesia (18,500 deaths). Smallpox remains endemic in huge areas of Africa, Asia, and the Americas, in all of which it still constitutes a serious problem with cases and deaths every year, and serious, though imperfectly recorded, epidemics. In 1960 the known cases throughout the world totalled 59,000—less than in any previous year. The number in 1959 was 78,000, and the reason for the decline was the reduced incidence in India and Pakistan. It seems likely that 1961, too, will prove to have been a year of relatively low incidence.

Although cases of smallpox have occurred in recent years in many towns near major ports or airports, sea passage has lost much of its importance in transmission; between January 1960 and March 1961 seven ships discharged infected passengers at major ports without causing any ill effects in the hinterland. Air passage, however, enables a traveler infected just before departure to arrive and to infect contacts before the first symptoms appear. Smallpox was exported in this way from India on five occasions in 1960 and 1961, causing localized epidemics in Moscow in 1960, and in Madrid and Ansbach (Federal Republic of Germany) in 1961.

Typhus

There is a certain amount of statistical confusion regarding typhus, for a clear distinction is not always made between the true louse-borne typhus and similar rickettsioses with different vectors; some regions where the disease is endemic completely lack laboratory, and even medical, services.

In Africa the annual numbers of cases at both extremities of the continent have greatly declined from the high levels of the 1930's and 1940's. (Table 5). Ethiopia-Eritrea remains a major reservoir of the disease, with thousands of known cases annually despite incomplete statistics; and many hundreds of cases are reported from the other classical foci in the Congo (Leopoldville) and Ruanda-Urundi. The disease is persistently endemic in Kenya; in the Cameroons, Ghana, the Ivory Coast, and Nigeria it is rare. No conclusions can be drawn from the data available for other African territories.

TABLE 5. CASES OF TYPHUS RECORDED IN FIVE AFRICAN COUNTRIES AND TERRITORIES

	1930-1960 maxima	1959	1960
Egypt	40 188 ^a	955	529
Algeria	37 643 ^b	27	50
Morocco	28 802 ^b	0	6
Tunisia	16 564 ^b	17	6
South Africa	8 710 ^c	80	72

^a 1943. ^b 1942. ^c 1934.

TABLE 6. ANNUAL NOTIFICATIONS OF LOUSE-BORNE RELAPSING FEVER BY CONTINENT, 1956-60

	1956	1957	1958	1959	1960
Africa	3 220	3 441	5 239	8 668	4 504
America	50	67	34	113	4
Asia	15	67	27	13	0
Europe	1	1	3	2	1

In the Americas typhus is rarely encountered in the northern half of the continent, except for Mexico; and it has disappeared from Puerto Rico, its only foothold in the Caribbeans. In Central America it occurs only in Guatemala; and the most affected states of South America are Colombia and Ecuador where several hundred cases of rickettsial diseases are known to occur annually. According to the official returns, typhus is exceedingly rare in Argentina and Brazil.

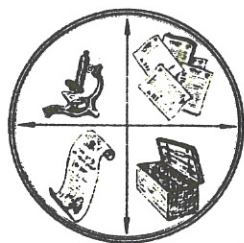
In Asia thousands of cases have been reported annually from India and East Pakistan in quite recent years, but the data do not justify any detailed assessment of the general position. There has been a marked fall in incidence in Afghanistan, Iran, South Korea, and Turkey; a few doubtful cases have occurred in Lebanon, the Philippines, and Singapore; and the disease has disappeared from Israel, Japan, Jordan, and Viet-Nam.

The only European countries with more than a few cases in recent years are Poland and Yugoslavia (Brill's disease); there are no data for the USSR. Louse-borne typhus is rare or nonexistent in Oceania.

Relapsing Fever

Louse-borne relapsing fever was included among the quarantinable diseases in 1951. It cannot be said to be endemic outside Africa, where it occurs particularly in Ethiopia and is often confused with the tick-borne variety. Some idea of its frequency in recent years may be obtained from Table 6.

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MISCELLANY

New Unified Scale for Atomic Weights

National Bureau of Standards, U.S. Dept of Commerce, Technical News Bulletin 46:34-35, February 1962.

The International Union of Pure and Applied Chemistry has adopted a new basis for the expression of atomic weights—the exact number 12 as the assigned atomic (nuclidic) mass of the principal isotope of carbon—carbon 12. This action, taken in August 1961, parallels the 1960 action of the International Union of Pure and Applied Physics, and eliminates the confusing difference that has existed between the atomic weights used by chemists and physicists.

Prior to about 1930, both physicists and chemists had used natural oxygen with an atomic weight of 16 as the basis for fixing the scale of atomic weights. However, the discovery that natural oxygen is a mixture of three isotopes—and a slightly variable mixture at that—led physicists to assign the number 16 as the atomic mass of oxygen isotope 16, whereas chemists continued to use 16 as the atomic weight of natural oxygen.

This dual basis, of course, led to two tables of atomic weights, differing by some 275 parts per million (ppm). In addition, such constants as the faraday, Avogadro's number, and the gas-law constant had different values, depending on which basis was chosen. Understandably, considerable confusion resulted from this situation. Values quoted in the literature were often misleading if the scale upon which they were based was not identified. Also, it was inconvenient for scientists to constantly make the required conversions.

The situation was further compounded by the fact that, even though physicists were using oxygen isotope 16 as the defined reference species, mass spectroscopists had found it far more convenient to use carbon 12 as a working standard because this atom provides a series of reference points in mass spectrograms. This made it necessary from time to time to redetermine the atomic weight (nuclidic mass) of carbon 12 in terms of oxygen 16.

The International Commission on Atomic Weights took the first step towards unification in 1957 with the proposal that carbon 12 be adopted as a common reference species. Dr. Edward Wichers, Associate Director of the Bureau of Standards, who was then President of the Commission, advocated the adoption of the new basis among chemists. Similar work was done among physicists by Dr. J. Mattauch, the leading figure in Germany in the field of mass spectroscopy. After considerable discussion by the organizations

concerned, and by interested scientists, carbon 12, the most abundant natural isotope of carbon, was adopted as the reference species for a unified scale with assigned mass of 12 exactly.

A revised table of atomic weights, based upon the new standard, was published by the IUPAC in October 1961, with the recommendation that it be placed in universal use as of 1 January 1962. Values in this table differ from those based on natural oxygen by about 40 ppm, and from those based on isotopic oxygen 16 by about 300 ppm. In addition to these systematic changes, many values were revised in light of the reevaluation of experimental data by the Commission. No atomic weights are listed in the new table for most radioactive elements, as these elements have no fixed value. However, a more complete table, listing the mode of disintegration and mass numbers of selected isotopes, will be published with the proceedings of the 1961 IUPAC meeting.

*IUPAC table of international atomic weights—1961**

[Based on nuclidic mass of $C^{12}=12$]

Element	Symbol	Atomic No.	Atomic weight	Element	Symbol	Atomic No.	Atomic weight	Element	Symbol	Atomic No.	Atomic weight
Actinium.....	Ac	89		Gold.....	Au	79	196.967	Praseodymium.....	Pr	59	140.907
Aluminum.....	Al	13	26.9815	Hafnium.....	Hf	72	178.49	Promethium.....	Pm	61	
Americium.....	Am	95		Helium.....	He	2	4.0026	Protactinium.....	Pa	91	
Antimony.....	Sb	51	121.75	Holmium.....	Ho	67	164.930	Radium.....	Ra	88	
Argon.....	Ar	18	39.948	Hydrogen.....	H	1	^a 1.00797	Radon.....	Rn	86	
Arsenic.....	As	33	74.9216	Indium.....	In	49	114.82	Rhenium.....	Re	75	186.2
Astatine.....	At	85		Iodine.....	I	53	126.9044	Rhodium.....	Rh	45	102.905
Barium.....	Ba	56	137.34	Iridium.....	Ir	77	192.2	Rubidium.....	Rb	37	85.47
Berkelium.....	Bk	97		Iron.....	Fe	26	^b 55.847	Ruthenium.....	Ru	44	101.07
Beryllium.....	Be	4	9.0122	Krypton.....	Kr	36	83.80	Samarium.....	Sm	62	150.35
Bismuth.....	Bi	83	208.980	Lanthanum.....	La	57	138.91	Scandium.....	Sc	21	44.956
Boron.....	B	5	^a 10.811	Lead.....	Pb	82	207.19	Selenium.....	Se	34	78.96
Bromine.....	Br	35	^b 79.909	Lithium.....	Li	3	6.939	Silicon.....	Si	14	^a 28.086
Cadmium.....	Cd	48	112.40	Lutetium.....	Lu	71	174.97	Silver.....	Ag	47	^b 107.870
Calcium.....	Ca	20	40.08	Magnesium.....	Mg	12	24.312	Sodium.....	Na	11	22.9898
Californium.....	Cf	98		Manganese.....	Mn	25	54.9380	Strontium.....	Sr	38	87.62
Carbon.....	C	6	^a 12.01115	Mendelevium.....	Md	101		Sulfur.....	S	16	^a 32.064
Cerium.....	Ce	58	140.12	Mercury.....	Hg	80	200.59	Tantalum.....	Ta	73	180.948
Cesium.....	Cs	55	132.905	Molybdenum.....	Mo	42	95.94	Technetium.....	Tc	43	
Chlorine.....	Cl	17	^b 35.453	Neodymium.....	Nd	60	144.24	Tellurium.....	Te	52	127.60
Chromium.....	Cr	24	^b 51.996	Neon.....	Ne	10	20.183	Terbium.....	Tb	65	158.924
Cobalt.....	Co	27	58.9332	Neptunium.....	Np	93		Thallium.....	Tl	81	204.37
Copper.....	Cu	29	63.54	Nickel.....	Ni	28	58.71	Thorium.....	Th	90	232.038
Curium.....	Cm	96		Niobium.....	Nb	41	92.906	Thulium.....	Tm	69	168.934
Dysprosium.....	Dy	66	162.50	Nitrogen.....	N	7	14.0067	Tin.....	Sn	50	118.69
Einsteinium.....	Es	99		Nobelium.....	No	102		Titanium.....	Ti	22	47.90
Erbium.....	Er	68	167.26	Osmium.....	Os	76	190.2	Tungsten.....	W	74	183.85
Europium.....	Eu	63	151.96	Oxygen.....	O	8	^a 15.9994	Uranium.....	U	92	238.03
Fermium.....	Fm	100		Palladium.....	Pd	46	106.4	Vanadium.....	V	23	50.942
Fluorine.....	F	9	18.9984	Phosphorus.....	P	15	30.9738	Xenon.....	Xe	54	131.30
Francium.....	Fr	87		Platinum.....	Pt	78	195.09	Ytterbium.....	Yb	70	173.04
Gadolinium.....	Gd	64	157.25	Plutonium.....	Pu	94		Yttrium.....	Y	39	88.905
Gallium.....	Ga	31	69.72	Polonium.....	Po	84		Zinc.....	Zn	30	65.37
Germanium.....	Ge	32	72.59	Potassium.....	K	19	39.102	Zirconium.....	Zr	40	91.22

* Table courtesy IUPAC and Butterworth Scientific Publications.

^a The atomic weight varies because of natural variations in the isotopic composition of the element. The observed ranges are boron, ± 0.003 ; carbon, ± 0.00005 ; hydrogen, ± 0.00001 ; oxygen, ± 0.0001 ; silicon, ± 0.001 ; sulfur, ± 0.003 .

^b The atomic weight is believed to have an experimental uncertainty of the following magnitude: bromine, ± 0.002 ; chlorine, ± 0.001 ; chromium, ± 0.001 ; iron, ± 0.003 ; silver, ± 0.003 . For other elements the last digit given is believed to be reliable to ± 0.5 .

Whereas chemists have had, since about 1900, the advantage of a table of "best values" for atomic weights, physicists have not, until recently, had any similar compilation of the masses of individual nuclidic species. Data concerning these constants have been derived either from mass spectrometric

measurements or from "q-values," the net energy changes accompanying nuclear reactions. Differences larger than the estimated experimental uncertainties of each type of data existed between values derived by the two different technics.

In recognition of this undesirable situation, the International Union of Pure and Applied Physics created in 1960 a Commission on Nuclidic Masses whose function will be to evaluate all experimental evidence and to recommend "best values" of nuclidic masses. In anticipation of the work of this official group, Everling, König, and Mattauch have published a table of "Relative Nuclidic Masses." * Data from this table were used in revising the table atomic weights. Thus, because chemists and physicists now use the same scale, the "atomic weights" of some 20 mononuclidic elements are identical with the "nuclidic masses" of the nuclides that constitute the elements as they exist in nature.

* Relative Nuclidic Masses by F. Everling, L.A. König, and J.H.E. Mattauch. Nuclear Physics 18:529, 1960.

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THE BREMERHAVEN A New Emergency Hospital Ship

By CAPT John H. Stover Jr, MC USN, Medical Sciences Liaison Officer,
Department of the Navy (U.S.), Office of Naval Research Branch Office,
Navy 100, Box 39, FPO, New York, N.Y.

The Federal German Republic Navy has recently equipped a new civilian cruise ship, the 2500 ton MS BREMERHAVEN, for conversion to a casualty transport ship in the event of an emergency. Three other conversions are planned. The second ship, the 3500 ton MS WAPEN VON HAMBURG, is scheduled to be completed in May 1962, and is named after a famous Hanseatic cruiser of the Middle Ages. The conversions can be made in 24 hours. Most existing hospital ships in the world are "mothballed" and would require about 60 days to be readied for service.

The BREMERHAVEN is designed primarily as a 1000-passenger day-time Hamburg to Helgoland cruise ship in the North Sea. She has four large open saloons which are readily convertible to hospital wards. For longer cruises there are cabin accommodations for 125 passengers; these cabins are constructed with removable bulkheads so that the entire cabin area of the ship or any part of it may be cleared to provide additional open areas.

The conversion designs for these ships have been largely the work of CDR Schnoor of the Naval Medical Service. CDR Schnoor was a line officer who specialized in shipbuilding during World War II. After the war he studied pharmacology and reentered the Navy in the Medical Service when the West German Armed Forces were authorized in 1956. His unique background has contributed to the success of the project.

The normal crew of the BREMERHAVEN is 25. For use as a hospital ship the crew is augmented by a Navy medical crew consisting of six medical officers, 11 nurses, one X-ray assistant, and 18 corpsmen. The Navy crew can accomplish the conversion in 24 hours without additional help. The equipment is stored ashore at dockside. Much of the required time is occupied by removing and storing the normal cruise furniture.

Hospital Wards

Four wards with a total capacity of 326 patients can be set up in the saloon areas. Special fittings for the bunk stanchions are concealed behind individual panels of the acoustic false ceiling in the first class lounges, and special brackets are installed on the overheads in the second class lounges. The bunk stanchions have rubber feet so that no floor fittings are required. Each stanchion has a threaded section for adjusting its length and for making the assembly rigid. Bunks are equipped with side racks, springs, and foam rubber mattresses. They are spacious and are assembled in two tiers. Access aisles and free floor space are generous, and arranged so that extra bunks may be installed if required. The stability of the bunking arrangement has been tested at sea under rough weather conditions (Sea State 6). To complete each ward, the bar area is converted to a nurses' station. The normal bar is covered with white plastic-faced plywood panels; special hospital type sinks are connected to the bar plumbing; medicine and instrument cabinets, linen and bandage storage cabinets, nurses' desk, etc., are installed. In two wards, existing showers in adjoining washrooms are removed and full length bathtubs installed.

If the casualty load is to be heavy, the cabin bulkheads on one deck are removed and a fifth ward of 70 beds is established. The other cabins are retained as quarters for the special crew and for isolation. Twenty-four isolation beds can be placed in normal cruise cabins.

Operating Suite

Although the ship is designed as a casualty transport ship rather than a true hospital ship, a spacious two-table operating theatre has been included. The after lounge on the sundeck is completely converted into a surgical suite by installing fitted white panels and false ceiling. The suite includes a preoperative area, a combination scrub room and autoclave room, an X-ray (and fracture) room, and the operating room. The WAPEN VON HAMBURG will have a more complete facility with separate operating rooms for clean and infected surgery.

Other Facilities

A cabin adjoining the operating suite is converted into a clinical laboratory. The normal ship's hospital is converted into central supply and records. The BREMERHAVEN has side hatches only 3 feet above the water line so that

on-loading from small boats should be feasible. At dockside, gangplanks can be rigged to the side hatches and to the main deck for litter carry and walking wounded. A light boom and winch are to be installed shortly to lift patients in rigid litters from water level to the upper decks.

Deficiencies

The open deck area of the BREMERHAVEN does not allow helicopter landing. The WAPEN VON HAMBURG will have this capability. The laundry on the BREMERHAVEN is not adequate to meet the requirements of a 400-bed hospital; the WAPEN VON HAMBURG will have additional laundry capacity.

Speed, Range, Stores

The BREMERHAVEN can make 18.5 knots, the WAPEN VON HAMBURG, 20. Both have refrigerator and dry stores space as well as fuel bunkers to permit three weeks at sea with a cruise range of 7000 miles. It is calculated that patients could be evacuated from North Germany as far as the Iberian peninsula if required. A successful military exercise with the BREMERHAVEN was conducted in February 1962.

NOTE: Appreciation is extended to Dr. Stover, the author of this article, and to Dr. Immanuel Esterman, Scientific Director of the Office of Naval Research, Branch Office, Navy 100, Box 39, FPO, New York, N. Y., for permission to publish this account of developments in conversion of cruise type ships to casualty transport and treatment ships. It is understood that the periodical, European Scientific Notes, from the above office, is to carry a similar article with photograph.

—Editor

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From the Note Book

NSHA Establishes Counseling Program. The U. S. Naval School of Hospital Administration announces the establishment of an Educational Counseling Program whereby prospective students of the School may obtain assistance in planning their educational degree programs. The diversity of educational backgrounds and service school experiences of students and the relatively rigid structure of curriculum requirements at the Naval School of Hospital Administration and The George Washington University indicate the desirability of establishing the program to assist prospective students in planning and integrating their college work prior to assignment to duty under instruction at the School. The objectives are to relate the prior service experience and education of the prospective student to the curriculum and degree requirements

prescribed by this School and The George Washington University, to guide the prospective student in future educational efforts consistent with the above requirements, and to relate personal objectives with the training objectives established for Medical Service Corps officers.

Prospective students who desire to avail themselves of this service should write to the Commanding Officer, U. S. Naval School of Hospital Administration, NNMC, Bethesda, Md. Information in the initial contact should include data relative to service schools completed, prior college-level work identified as to university or college attended, dates attended, specific identification of courses completed, grades attained, and semester hours of credit earned; college-level correspondence courses completed; and whether the USAFI General Development Tests (first-year level) have been successfully completed. (MSC Div, BuMed)

Honor for CDR Deck E. Chandler MC USN. Doctor Deck E. Chandler, Chief of Radiology Service, U. S. Naval Hospital, Newport, R. I., has accepted the appointment of the Board of Directors of the Radiological Society of North America, Inc., to serve as Counselor for the Navy. His predecessor was CAPT Normal L. Yood MC USN (Ret), formerly Chief of Radiology Service, U. S. Naval Hospital, Philadelphia, Penna. Doctor Chandler's duties are outlined in the By-Laws, Article X, Section 3 of the Society, as quoted herewith:

"A Board of Counselors shall be appointed by the Board of Directors. The Counselors shall represent such districts as may be determined by the Board of Directors. It shall be the duty of the Counselors to conserve the interest and welfare of the organization in their respective localities and to work conservatively with the Chairman of the Membership Committee and the Board of Censors. "

Mental Patients in VA Hospitals. The yearly number of mental patients released from Veterans Administration Hospitals on trial visit to their communities has nearly tripled within less than 10 years. During fiscal year 1961, 20,907 patients were placed on trial visit, the method by which recovering mental patients are returned to their communities. The yearly rate at which psychiatric beds become vacant and available for new patients has risen from 66% in 1955 to 85% in 1961. The rapid progress is attributed by Dr. John J. Blasko, Assistant Director of Psychiatry and Neurology Services, to improved therapy and Veterans Administration programs. These consist of foster homes, halfway houses, day care centers, vocational counseling, and job placement which help patients make the transition from hospital to productive community life. The increase in trial visit patients and rate of turnover of patients has occurred during a period in which an increasing proportion of patients were those with long-term, chronic mental illness. Public Health Rep: 77:79, PHS DHEW, January 1962)

Science Information Exchange. Research scientists who wish to learn what is being done in any field of publicly supported or nationally financed research

may call upon the Science Information Exchange which is administratively controlled by the Smithsonian Institution and located at 1825 Connecticut Ave., N. W., Washington 9, D. C. The Exchange provides information for agencies which support it, Public Health Service, Department of Defense, Atomic Energy Commission, National Aeronautics and Space Administration, Federal Aviation Agency, National Science Foundation, and Veterans Administration. Information on research programs is indexed by States, institutions, areas, or organizational units.

Scientists working under agency grants usually deposit abstracts of their projects with the Exchange. A scientist may also register a project on a voluntary basis. Any scientist associated with a recognized research organization may ask the Exchange for names of scientists working in a specific field. The Exchange will, when possible, supply copies of summaries of all related research which is registered. This service facilitates communication among granting agencies and investigators. It also reduces the probability of duplicating work in progress. Some 36,000 active research projects in biology and medicine, which are on file with the Exchange, are classified in 6000 categories. (Public Health Rep 77:38, PHS DHEW, January 1962)

Naval Medical Research Reports

U.S. Naval School of Aviation Medicine, USN Aviation Medical Center, Pensacola, Fla.

1. Appearance of Compensatory Nystagmus in Human Subjects as a Conditioned Response During Adaptation to a Continuously Rotating Environment MR 005.13-6001 Subtask 1 Report No. 61, 16 August 1961.
2. Symptomatology During Prolonged Exposure in a Constantly Rotating Environment at a Velocity of One Revolution per Minute MR 005.13-6001 Subtask 1 Report No. 62, 8 September 1961.
3. A Reliability Assessment of the Velocity Volume (V - V) Loop Technique for Pulmonary Function Evaluation MR 005.13-3100 Subtask 8 Report No. 6, 30 November 1961.
4. Miniature Walk-Around Oxygen Rebreather Device MR 005.13-3100 Subtask 8 Report No. 7, 1 December 1961.
5. A Simple Technique for Measuring the Oxygen Cost of Physical Work MR 005.13-3100 Subtask 8 Report No. 8, 5 December 1961.

U.S. Naval Medical Research Unit No. 2, Taipei, Taiwan, APO 63, San Francisco, Calif.

1. An Animal Origin for Asian Influenza? Lecture and Review Series No. 60-3, October 1960.
2. Distribution of Haptoglobins Among Chinese in Taiwan MR 005.09-1601.7.1, 20 April 1961.
3. Epidemiology of Japanese Encephalitis (JE) on Taiwan in 1960 MR 005.09-1201.2.8, 28 September 1961.
4. Notes on the Fish Collection Made by NAMRU-2 MR 005.09-1601.3.6, 30 September 1961.

DENTAL**SECTION**Painful Pulpitis: Clinical and Microscopic Study

D. F. Mitchell and R. E. Tarplee, Indiana University. Oral Surg, Oral Med, Oral Path 13:1360-1370, November 1960. Year Book of Dentistry, 61-62 Series, pp. 8-9.

The authors find that because of the difficulty in preparing good microscopic sections, few attempts have been made to correlate accurately the clinical symptoms of pulpitis and the histopathologic picture. Misinterpretation of the microscopic findings in these few studies has led to confusion. A carefully controlled study of 26 cases was therefore initiated, with an analysis of clinical and microscopic findings. The teeth were subjected to electric vitality tests, applications of controlled heat and cold, percussion and exploratory probing.

The 26 patients reported for treatment in an average of 31 days after onset of toothache (range, 6 hours to 1 year). Half of them sought treatment within 1 week after onset of pain. The pain was reported as mild by 6, moderate by 3 and severe by 17. Pain was induced by heat alone in 2, cold alone in 11, heat and cold in 9 and biting pressure in 2; in 4 neither heat nor cold caused pain. Analysis of the objective testing revealed a consistent pattern. All teeth were sensitive to cold, and all but 1 were sensitive to heat. All but 4 were sensitive to percussion in varying degrees, and all displayed a pulp exposure when examined with a sharp explorer. Only 5 teeth showed a possible thickening of the apical periodontal membrane in X-rays.

An average of 58 microscopic sections (7 to 218) was made for each tooth. Invariably the pulp inflammation was greatest at the site of exposure. The extent of involvement varied from a small area in a pulp horn to extension into the root canals. Serial sections of certain teeth revealed the pitfalls in interpretation of a few "representative" sections of pulps unless the specimen is carefully oriented so that the cut extends through both the exposure site and the immediate underlying pulp tissue.

The patient's subjective complaints should be noted, but these are not so reliable as careful tests made by the operator. Some old diagnostic aids and ideas that no longer seem practical include such phrases as "cold hurts and heat relieves pulpitis," "heat hurts and cold relieves a necrotic pulp," "a necrotic pulp hurts more at night," "a lateral abscess hurts less than a periapical abscess" and "a throbbing pain denotes more serious pathosis than a dull pain." This study did not show any correlation between the

severity of the subjective or objective findings and the extent of inflammation seen on microscopic study. Inflammation extended into the root canals in only 7 teeth, and in no instance was there involvement of the apical one-third. However, 22 of the 26 teeth were tender to percussion to some degree. The reason for this finding is not clear.

The term "hyperemic pulp" appears invalid. So-called pulpal hyperemia represents a mild transient pulpitis localized to the pulpal ends of freshly cut dentinal tubules. This inflammation is evidence of injury but not infection and is reversible. If the practitioner will take care to arrive at an accurate diagnosis of the pathosis causing toothache, many more teeth will be saved by the judicious use of new and forthcoming therapeutic and restorative technics.

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Review of Current Technics in Periodontal Therapy
as Practiced in the United States

H. M. Goldman, Boston University. Internat. D. J. 10:287-309, September, 1960; Year Book of Dentistry, 61-62 Series, pp. 51-52.

Periodontal therapy has developed extensively in this country in the past decade. Not only have new technics been developed to obtain successful results in hitherto untreatable conditions, but the basic technics have been modified and in some instances changed considerably.

Scaling is an important initial step in treatment. Calculus must be carefully removed, each tooth being thoroughly cleansed and smoothed. Scaling as a therapeutic measure is intended to eliminate calculus as a local causative agent.

Most periodontists believe that curettage should be distinguished from scaling. Curettage is intended to debride the inner wall of the gingiva in order to remove that portion of the surface of the wound which hinders complete epithelization. This is accomplished by the use of sharp curets. The stroke is made so as to "bite" into the tissue and remove small sections without tearing the underlying tissue.

The rationale of curettage as a distinct procedure as compared with root planing is based on the observation that elimination of calculus does not result in complete gingival healing. Removal of calculus alone may eliminate considerable inflammatory infiltrate in the gingiva, but it never reaches the point of complete wound healing. After subsequent debridement and curettage of the gingival wall, this is possible. Many periodontists combine scaling and curettage in one operation. However, histologic studies show that the percentage of complete epithelization of the sulcus wall is higher after a two-stage procedure.

The philosophy of gingivoplasty has been well established. In more recent years osteoplasty has been incorporated into the periodontal therapeutic regimen. It was recognized that in many cases gingival contouring

alone was not sufficient to accomplish the aims of a tooth-gingiva relationship necessary for maintenance of health.

Refinement of technic for treatment of the infrabony pocket has gone on unabated. Many dentists not only have shown therapy to be successful, but have actually opened up into previous deformities to show that bone has filled in the area completely. The management of the occlusal problems is now a distinct part of periodontal therapy. This consists of occlusal adjustment, temporary splinting, orthodontics, restorative dentistry and, in many instances, partial splinting. Careful consideration of the systemic condition of the patient is part of current practice.

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Personnel and Professional Notes

Officers Selected for Advanced Training. The following Dental officers have been selected for General Postgraduate Training at U. S. Naval Dental School, NNMC, Bethesda 14, Md., commencing September 1962:

CDR Gage (n) Colby	LCDR Robert E. Fields
LCDR Robert J. Leupold	LCDR James W. Phillips
LCDR James E. Corthay	LCDR William H. Prange
LCDR Roger H. Howard	LCDR Samuel T. Williams, Jr.
LCDR Robert H. Spicer	LCDR Sidney (n) Raybin
LCDR Paul E. Barrow	LCDR Richard D. Prince
LCDR Robert D. Cullom	LCDR Richard D. Collier
LCDR Dan (n) Marit	LCDR Thomas M. Allensworth
LCDR Daniel M. Baird	LT Ernest T. Witte
LCDR Thomas W. McKean	LT William J. Scott
LCDR John T. Janus	LT Ronald D. Baker
LCDR Roscoe P. Hylton, Jr.	LT Alexander D. Sanderson
LCDR Charles E. Cowen, Jr.	LT Donald C. Gonder
LCDR William P. Armstrong	LT Albert (n) Herr

The following Dental officers have been selected for advanced training in specialties as indicated:

Oral Surgery

CAPT Ernest W. Small	LCDR Norman K. Luther
LCDR Ethan C. Allen	LCDR Robert E. Timby
LCDR Paul L. Abbott	LCDR Clyde L. Fulcher
LCDR John "T" Anderson	

Prosthodontia

LCDR John B. Holmes	LCDR Henry (n) Muller, III
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Periodontia

CDR Edwin "R" Black
CDR Corey H. Holmes
LCDR Charles F. Rau
LCDR Jefferson F. Hardin

CDR Lewis L. Gunther
LCDR Ralph E. Sand
LCDR Kenneth K. Kaneshiro
LT William C. Moffitt

The following Dental officers have been selected for advanced training in civilian institutions in specialties as indicated:

Public Health

CDR Frank D. Grossman
LCDR Robert E. Austin

Operative

LCDR James D. Knoch

Micro-Anatomy

LCDR William R. Cotton

Dental Standards for Naval Academy Preparatory School. Prior to transferring personnel to the Naval Academy Preparatory School, U. S. Naval Training Center, Bainbridge, Md., the provisions of Article 6-89 Manual of the Medical Department must be adhered to. This article is quoted in part, "Except for minor or questionable carious areas, all required dental treatment must be completed." Failure to comply works a definite hardship on the student and the dental department at Bainbridge.

Top Navy Winner in Freedoms Foundation Contest Named. Chief Warrant Officer William J. Huttig, of the U. S. Naval Dental Clinic, Naval Weapons Plant, Washington, D. C., has been awarded third prize in the annual Freedoms Foundation Letter Awards for 1961. The topic of the 1961 essays was "What Can I do For Freedom." Mr. Huttig was also the top Navy winner.

A cash award and the George Washington Honor Medal were presented to the top winner from each service at the Freedoms Foundation Luncheon, Valley Forge Military Academy, Valley Forge, Pa., on 22 February.

The following day the top winners travelled to Washington, D. C., to meet with high ranking officials of their services, and a luncheon with Members of Congress.

Mr. Huttig enlisted in the Navy in Pittsburgh, Pa., on July 9, 1940. During World War II, he participated in the invasions of Africa, Sicily, and Italy, and served aboard a troop transport ship. During the Korean Conflict, he served with the First Marine Division in Korea.

The following is the text of Mr. Huttig's prize-winning letter:

"What Can I Do For Freedom?"

I can make peace with myself. I can examine my conscience and determine if my goals, actions, deeds, and words are directed with honor and selflessness or merely with greed and self-interest.

I can make peace within my family. I can make an honest attempt to create harmony with each member; laying aside all real or imagined wrongs; working together, playing together, praying together toward unity and understanding.

I can make peace with my neighbor. I can forget petty nuisances and jealousies and forgive trespasses. I can endeavor to maintain my community, my property, and my appearance in a manner beyond reproach.

I can make peace with my co-workers and employer. I can work in harmony with my associates, regardless of race or religion, and not be covetous of their position or station. I can give my employer an honest return for my pay and settle disputes by arbitration rather than with strikes and violence.

Having thus made peace with myself, my family, my neighbor, my community, my co-workers, and employer, I have woven a thread to the cable of faith and solidarity that must, of necessity, bind our nation together in a union of strength that will enable us to survive the rigors of the present and future years and ensure freedom for this and future generations."

Iceland Dental Students Tour Naval Station. Dental personnel of the U. S. Naval Station, Keflavik, Iceland were hosts to 10 senior dental students and an instructor from the Dental College of the University of Iceland, Reykjavik on 9 February 1962.

The morning was spent observing the Dental officers treating patients. The group was served lunch in the Dispensary mess and spent the afternoon touring the Naval Dispensary and the Armed Forces Radio and Television service where they were shown the operations of the only television station in Iceland.

The following demonstrations were given by Dental officers:

Capt N. H. Martin - Surgical Removal of Impacted Mandibular Molar

Capt L. A. Bohaker - Prosthetic Techniques

Lt S. Sirkin - Endodontia Techniques

Lt F. Van Ummersen, III - Operative Dentistry Techniques

Lt B. J. Lavin - Pedodontic Dentistry

The Senior Dental Officer is Capt Niels H. Martin DC USN.

DT3 Johnson Selected as Sailor of the Year. Dental Technician Third Class Gary L. Johnson was selected to be Sailor of the Year at NAS Lakehurst, N. J. for 1962.

His selection was made by Capt F. N. Klein Jr., Commanding Officer, NAS Lakehurst. The event was sponsored by the Navy League of the United States, Jersey Shore Council, and the award, which was based on leadership, conduct and performance of duty, consisted of a scroll which read, "Certificate of Merit for outstanding leadership, performance of duty, and conduct with his organization. "

Dr. Holland Lectures at Naval Dental School. Dr. Da [redacted] Holland of Brookline, Massachusetts, lectured recently on "Clinical Manifestations of Oral Cancer" to staff, resident, and postgraduate Dental officers, and civilian and military guests, at the U. S. Naval Dental School, Bethesda, Md.

Dr. Holland is President of the Harvard Dental Alumni Association and President of the Brookline Dental Society. He is a consultant in Oral Surgery to the U. S. First Army, the U. S. Public Health Service, and the Veterans Administration.

Dr. Holland has served as President of the Massachusetts Dental Society and as President of the American Board of Oral Surgery. He is Assistant Editor of the Journal of Oral Surgery, Oral Medicine and Oral Pathology, and a Fellow of the American Academy of Dental Science.

Dental Intern Training Program. Sixty-one applicants from dental students requesting appointment to the Dental Intern Training Program were considered recently in the Dental Division of this Bureau. The candidates listed below were recommended for the Dental Intern Training Program and for appointment in the Dental Corps, U. S. Navy.

Balcerak, R. D.
Univ. of Buffalo

Parrino, P. A.
Emory Univ.

Clark, G. E.
Ohio State Univ.

Pierce, W. F. III
Univ. of Tennessee

Groat, J. E.
Col. of Phys. & Surg. (Loma Linda)

Reed, H. H., Jr.
Baylor Univ.

Hohlt, W. F.
Indiana Univ.

Rowley, C. L., Jr.
Univ. of Nebraska

Johnston, W. C.
Univ. of Pittsburgh

Scoralle, D. L.
Loyola Univ. (Chicago)

Kelty, J. P.
Temple Univ.

Sewell, R. H.
Univ. of Texas

Kepley, B. E., Jr.
Univ. of Louisville

Sheller, D. F.
Indiana Univ.

Kulas, J. P.
Loyola Univ. (NOLA)

Walters, M. W.
Univ. of Minnesota

Menges, P. B.
Univ. of Kansas City

Zenas, D. A.
Univ. of Detroit

Portsmouth Dental Officers Host New Hampshire Dentists. The South Eastern New Hampshire Dental Society was hosted at it's February meeting by Dental Officers of the U. S. Naval Base, Portsmouth N. H. Dentists from the several towns located in the area, the Dental Officers from the local Pease Air Force Base, and the Dental Officers of the Naval Reserve Training Center were in attendance.

Following a social hour and dinner, the group was shown a film and addressed by Capt R. E. Blair DC USN on the subject, "Practical Endodontics." Cdr D. R. Bassett DC USN then conducted a question and answer period and a table clinic.

LCdr Demaree Presents Lecture. LCdr Neil C. Demaree DC USN, USS Long Beach, delivered a lecture entitled "Properties of Dental Amalgam Made from Spherical Particles" to the staff Dental officers at the U. S. Naval Dental Clinic, Norfolk, Va., on 15 February 1962.

LCdr Demaree, a 1953 graduate of the University of Louisville, received his masters degree in Dental Materials from the University of Georgetown in 1961.

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PREVENTIVE MEDICINE

Salmonellosis - Florida

Reported by Dr. James O. Bond, Director, Bureau of Preventable Disease, Florida State Board of Health and Dr. Charles Waters, EIS Officer assigned to Florida State Board of Health. US DHEW PHS Morbidity and Mortality Weekly Rpt 11(7): 50-51, 17 February 1962.

Twenty-four hours after having consumed a noonday meal at a small hotel in Florida on 24 September 1961, 19 of 24 individuals had sudden onsets of illness characterized by nausea, vomiting, diarrhea, and weakness. The illness was severe enough to cause the hospitalization of 12.

Salmonella montevideo was isolated from 17 individuals. Cheese pudding was most likely the contaminated food item causing the outbreak.

The chart on the following page shows the food history and results of stool cultures on the 24 individuals at risk.

	No.	Stool Specimens Obtained	<u>Salmonella</u> <u>montevideo</u> Isolated	Ate Cheese Pudding
Ill	19	15	15	15
Not Ill	5	5	2	1

Investigation revealed that the dishwasher-waitress had not been feeling well the week of September 17 and had been nauseated the night of September 23; however, she did work the entire day of September 24. The following day she was too ill to work. The cook had been and remained in good health. Both food handlers had positive cultures for Salmonella montevideo.

In the preparation of food, the waitress had grated cheese for the cheese pudding, made the iced tea, handled the ice, and waited on the tables. The cheese pudding was prepared by placing alternate layers of bread chunks and grated cheese in a pan. Milk was poured over the ingredients and the pudding placed in the oven just long enough for the cheese to melt, approximately 10 to 15 minutes. The pan was then removed from the oven, placed on the side of the stove, and left until served.

Considering the excellent media which the cheese pudding provided for the bacterial growth, the high attack rate for those having consumed the product, and the manner in which it was prepared, it is felt that possibly one of the food handlers contaminated the product with salmonella which grew to the extent that they were in quantities capable of causing illness. The remaining foods were handled in such a manner that they were not likely to have been the vehicle involved in this outbreak. (CommDisBr, PrevMedDiv, BuMed)

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Acute Glomerulonephritis and Streptococcal Infection

Communicable Disease Branch, Preventive Medicine Division, BuMed.

Whenever a diagnosis of acute glomerulonephritis is made on a patient, it is the obligation of the doctor to examine and culture those individuals that are in relatively intimate contact with the patient to ascertain whether they have recently had a streptococcal infection or have nephritis. The first area of concern is the immediate family. That is, those individuals living in the same household. As the minimum, each individual who has had a sore throat in the preceding 3 or 4 weeks should have a urine examination and ideally a culture of the throat. If the throat culture is positive, or if there is increased excretion of red cells, the patient should receive a course of penicillin therapy

sufficient to eliminate the group A streptococcus. If cultures cannot be taken on the members of the family or household, then one should consider administering penicillin prophylactically to the entire household. Certainly in military installations, all efforts should be made to prevent the spread of nephritogenic organisms among the military staff. This is doubly important because these organisms not only cause rheumatic fever but in addition, acute glomerulonephritis.

The second area that the military physician should consider is the school or classroom that the child attends. The importance of this area of spread of nephritogenic streptococci is emphasized by a study done at Warren Air Force Base, Cheyenne, Wyoming, and reported January 1955 in Pediatrics. Here, one classroom in Cheyenne, Wyoming, was found to be the source of spread of large numbers of nephritogenic organisms among the children of military personnel attending the classroom. The epidemic was essentially limited to this classroom and fortunately did not produce a large-scale epidemic among the military population itself, although small numbers of infections did occur. It is certainly in the best interest of both military medicine and in general, preventive medicine, to look upon an index case of glomerulonephritis as an obligation that the physician must accept to prevent spread both in the family units as well as in the larger units of school populations and military personnel.

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Botulism in New Mexico

US DHEW PHS Morbidity and Mortality Wkly Rpt Vol 11, No. 9, 9 March 1962, Reported by Director, Division of Preventive Medicine, and Director, PH Laboratory, New Mexico Dept of PH.

Three men, aged 18, 22, and 24, residing in the same house in a New Mexico town, had onsets of an illness characteristic of botulism on 11 and 12 January 1962; two of the men died on January 13.

The suspected meal, which all 3 persons consumed on the evening of 10 January consisted of home-canned green chili and spaghetti, bread, and milk. The spaghetti had been stored in the dry state in a cellophane package until use. The meal had been prepared by one of the men who died; however, the surviving victim could not recall anything abnormal in the smell, taste, appearance or texture of the foods served.

The morning of 11 January, approximately 12 hours after the suspect meal, one of the patients, A., complained of glare from the sun, inability to see well at a distance and inability to play the guitar. In the evening, he complained of increased visual disability and "flu" symptoms. At 4:00 a.m., on 12 January, he awoke with nausea and vomiting and subsequently developed headache, dysphagia and difficulty in speech. He was admitted to the hospital for treatment at 1:30 p.m., 12 January, and died on 13 January.

Patient B, complained first of "flu" symptoms during the evening of 11 January, the day after the suspect meal. Early the next morning he experienced nausea and vomiting and visual disturbances. He attended work, although becoming increasingly ill and complaining of nystagmus. He was hospitalized at 5:30 p. m. with weakness, diplopia, and some difficulty in speech and swallowing. He recovered.

The third patient C, had onset of symptoms on the morning of 12 January, about 36 hours after eating the suspect meal. He was hospitalized at 1:30 p. m. the same day with diplopia, dysphagia, and difficulty in speech, and died on 13 January.

The suspected home-canned foods in the house, including a 1 quart jar of the home-canned chili, were confiscated and taken to the State Public Health Laboratory. Clostridium botulinum was not isolated, nor was toxin demonstrated. A return visit to the house was made and a previously undetected glass fruit jar containing a few green chili seeds was found. No fluid or juice was present. The color was normal; however, the contents had a putrid, offensive odor. A heat-labile, toxic substance was demonstrated which killed mice within 15 hours and which was neutralized by C. botulinum Type A antitoxin. Just when the contents of this jar had been consumed could not be determined because the cook was dead. Presumably this occurred on January 10th. (CommDisBr, PrevMedDiv, BuMed)

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Wasps as Enemies of Man

J. A. Fluno, Entomology Research Division, Agric. Res. Serv., U.S.D.A.
Bulletin of the Entomological Society of America, program issue 3(7): 117-119, September 1961.

The seriousness of wasps, hornets, yellow jackets, and their relatives as potentially dangerous arthropods has not been generally recognized by laymen or entomologists. While not disease vectors, they may cause hospitalization and death from anaphylactic shock caused by their stings.

The term "wasp" is broad and covers many kinds of Hymenoptera; however, it is usually limited to forms, other than ants, that are carnivorous or predominately so. The term generally includes hornets and yellow jackets. The term "hornet" as used in the United States, includes wasps of the genus Vespa, which nest above ground, and certain above ground nesting Vespula, subgenus Dolichovespula - the genus that also includes the yellow jackets. Only groundnesting Vespula, subgenus Vespula are properly called yellow jackets.

The USDA receives more than 10,000 requests each year for information on wasps. About half of the inquiries indicate that the writer or a member of his family has severe reactions from the sting of a wasp.

Hymenoptera kill more people each year than snakes or spiders and scorpions. Parrish studied the causes of 215 human deaths from venomous

animals reported in the United States in the 5-year period 1950-1954. Insects of the order Hymenoptera killed 40%, whereas poisonous snakes accounted for only 33%; spiders, scorpions, and other venomous animals accounted for the remaining 27%. When the data was rearranged to eliminate deaths from snakebite, about 60% of the remaining 144 deaths were caused by wasps, bees, hornets, and their relations.

The same author studied the death certificates but such documents probably do not include all deaths due to wasp stings. Reaction to wasp stings is not in a separate category in morbidity reports and some hospitals use a code which includes all venoms. It is thought that many human deaths attributed to "heart attacks" or "heat strokes" may actually have resulted from the sting of a venomous insect.

Coroners and physicians may not always recognize wasp stings as the cause of death, especially when an automobile accident is involved. Even a minor reaction to a sting may distract the driver while a severe reaction may leave the vehicle essentially driverless. Miller (1946) states: "It is impossible to estimate the number of cases in which victims have wrecked their automobiles, and their deaths have been inaccurately ascribed to coronary or traffic accidents."

Thousands of species of wasps occur in the United States, and at least 50 are troublesome around the home and in public parks. Yellow jackets, hornets, and Polistes are social wasps that live in more or less populous colonies or nests, while other wasps are solitary. Their habit of nesting in proximity to man increases the likelihood of man receiving stings.

It is not known which species cause the most severe reactions in man, since most of the victims are unable to distinguish between wasps, bees, or hornets. However, Polistes, hornets, and yellow jackets are probably most commonly involved in stinging man, since they are very aggressive in protecting their nests.

Identification of honey bee stings is usually possible since a honey bee often, though not always, leaves the stinger and attached associated glands at the site of the sting.

Types of Reactions

Hymenopterism Vulgaris — Effect of the sting is painful but not serious or lethal. Pain varies but is generally intense and immediate at the wound site. Localized reddening and swelling almost always occur. Pain, swelling and stiffness may last for only a few minutes or for 1 or more days.

Hymenopterism Intermedia — In this arbitrarily classified type of reaction, swelling includes considerable tissue beyond the actual site of the sting; for example, an entire arm or leg. This reaction may last for several days. Stings in the tongue, neck or throat are placed in this category.

Hymenopterism Ultima — In this lethal or near lethal reaction, the patient generally goes into shock within 10 to 20 minutes after receiving the sting. Hives may be present, breathing is shallow, pulse and heartbeat are

almost undetectable. The need for expert medical assistance is obvious.

While victims of Hymenopterism Vulgaris seldom consult a physician, those persons with Hymenopterism Intermedia definitely should do so. The extensive involvement is an indication of the body's sensitivity and may indicate that the patient is likely to demonstrate Hymenopterism Ultima in the future, perhaps with the very next sting.

Wasp venoms include one or more spreading constituents, enzymatic materials, and proteins or protein-like materials, histamine and possibly other compounds. Neumann and Habermann (1956) point out that the toxic effects of a given venom result from the combined action of its components, but may also be caused by metabolites formed when the poison components react with constituents of the envenomated organism.

Patients suffering from insect sting reactions should be treated as true emergencies. In Hymenopterism Ultima where shock may develop within 10 minutes, treatment consists of establishing a free air-way, the administration of oxygen, and the application of artificial respiration when indicated. As soon as possible, an infusion of 2 to 4 mg diphenhydramine hydrochloride per kilogram of body weight or other similar antihistamine, immediately followed by calcium lactate solution, 0.05 to 0.1 cc per kilogram of body weight, is given intravenously through the same needle. The calcium should be administered rapidly enough to flush the patient (2 to 4 cc in fifteen seconds for an adult), and there is usually a dramatic improvement when the patient complains of burning in his tongue, palms, or soles. Administer the remainder of the calcium solution more slowly, to avoid flushing. This therapy is followed by supportive treatment and usually some form of steroid therapy. (Treatment given here is from "Venoms," Publication No. 44, American Association for the Advancement of Science, Washington, D. C., 1956)

Foubert and Stier (1958) suggest that a satisfactory antigen mixture should include at least "bee, wasp, yellow jacket and hornet" extracts.

Control efforts are directed toward treatment of nests and the surrounding areas. Dusts containing 5 or 6% chlordane, or 5 or 10% DDT may be used. Sprays, chlordane 2%, or DDT 5% can be employed. Water-base sprays, prepared from wettable powders or emulsifiable liquid concentrates are preferable to the oil-based sprays for outdoor use (to avoid injury to vegetation). If possible the nest should be saturated with the insecticide. Apply the insecticide at night when most of the wasps are present and activity is at a low level. Susceptible individuals should not attempt to control wasps by their own efforts.

Rapid garbage disposal around homes and in picnic areas will reduce the number of certain species of wasps that congregate around garbage containing fruit. Fallen fruit on lawns should be removed daily.

Wagner (1961) successfully controlled yellow jackets and honey bees in park areas of Los Angeles by treatment of trash receptacles with 0.75% DDVP. This was applied once a week to the inner surfaces, particularly near the rim, immediately after the trash barrels were emptied.

Weather, Environment, Insects, and Disease

CAPT J. D. DeCoursey MSC USN, Head, Vector Control Section,
PrevMedDiv, BuMed, Washington 25, D. C.

Heavy snow and rainfall throughout the United States in 1962 has set the stage for potential heavy increases in the production of insect vectors of disease. This is especially true of the East and West Coast and the Mississippi Valley areas. Whenever precipitation exceeds the normal, and improper drainage exists, standing pools of water are produced by rainfall, overflowing streams, and melting snow. Heavy snow packs in the mountains ultimately lead to flooding in the valleys. These conditions, coupled with the warmer temperatures of spring, precipitate the production of hordes of mosquitoes and gnats. The irrigation of fields, pasture land, and crops extend the breeding period well into the summer and fall months.

The production of large numbers of insect vectors increases the danger of disease transmission. The following diseases are transmitted by mosquitoes in the United States: Eastern and Western Equine Encephalitis, St. Louis Encephalitis, and malaria. The latter disease has disappeared as a menace in this country. Yellow fever, however, has been approaching from Panama through Central America in jungle monkeys and mosquitoes. This has led to the necessity for increased surveillance and quarantine measures since the vector mosquito, Aedes aegypti, is found in many areas of the Southeastern United States.

The encephalitides affect the central nervous system of man, causing inflammation of the brain which may result in permanent damage to that organ.

Eastern Equine Encephalitis is found in the Mississippi Valley and along the Atlantic and Gulf Coasts. The disease occurs very commonly in horses and pheasants. Mortality averages 60% in humans and 90% in horses.

Western Equine Encephalitis, found in horses and man in the states West of the Mississippi as well as in Illinois and Wisconsin, produces a mortality ranging from 5 to 15% in man and 20 to 30% in horses. This is a very serious disease, especially in children below two years of age. Studies in California of children who have contracted the disease since 1945 show that 40% retained slight to very severe permanent mental and physical damage, with a few deaths.

The St. Louis strain gives rise to outbreaks of both rural and urban types. In the rural cases the St. Louis and Western strains are frequently mixed, and the mortality is low, ranging from 2 to 11%. The virus is found in domestic and wild birds.

When heavy rainfall occurs, such as during the present year, conditions are created which are optimum for the development of both the vectors and the pathogen. This makes it imperative that extensive mosquito abatement activities be pursued to insure that epidemics of vector-borne diseases do not materialize.

We are indeed fortunate in this country from the standpoint of the few vector-borne diseases present. In other more tropical countries, insects that breed in water or moist earth transmit such diseases as: onchocerciasis, tularemia (black flies), dengue, Japanese B and Russian spring-summer encephalitis, filariasis, Rift Valley fever, yellow fever (mosquitoes), and loa loa (Tabanid flies).

The services of the U. S. Navy Disease Vector Control Centers and Preventive Medicine Units are available to Naval activities for consultation and guidance on vector control problems.

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EPIDEMIOLOGICAL REPORTS

US DHEW PHS Morbidity and Mortality Wkly Rpt 11(10):74 and 80,
16 March 1962.

Cutaneous Anthrax - Delaware

On January 27, 1962, a 55 year old male noticed a small pruritic lesion resembling an insect bite on his right forearm.

The patient was employed at a local tannery which has experienced cases of cutaneous anthrax in the past. He was admitted to the hospital where a culture taken on January 29 was positive for *Bacillus anthracis*. Because of penicillin allergy — treatment was instituted with tetracycline. The clinical course was mild and he made an uneventful recovery.

The source of infection is presumed to have been a shipment of goat hides received from India. This is the first confirmed case of human anthrax in the United States reported during 1962.

(Reported by Dr. F. I. Hudson, State Health Officer, and Dr. E. F. Gliwa, Deputy State Health Officer, Delaware State Board of Health.)

Hepatitis Among Chimpanzee Handlers - New Mexico

Three chimpanzee handlers at Holloman Air Force Base were hospitalized with hepatitis on November 23, 24, and 25, respectively. All three of these persons had been working in the isolation quarters for newly arrived chimpanzees. Two handlers were new to the organization, having been stationed at the Colony for less than 6 months, and the third had been there for approximately 18 months to 2 years. The case hospitalized on November 23 had a mild case of hepatitis with jaundice and was released after a few days' hospitalization. The other two cases hospitalized on November 24 and 25 were anicteric but had alterations in liver function tests and had symptoms compatible with anicteric hepatitis.

At the time of the occurrence of the three cases in chimpanzee handlers there were two other cases of hepatitis among airmen on the case. However, neither of these individuals had had contact with the chimpanzee colony, and there was no apparent relationship to the outbreak among the chimpanzee handlers.

The newest group of chimpanzees added to the Colony arrived at Holloman Air Force Base on October 13, 1961. In this shipment, which had originated in the Cameroons, there were 10 chimpanzees. There was no unusual occurrence of illness among these animals.

(Reported by Dr. Robert Edwards and Dr. James Cook, Holloman Air Force Base, New Mexico.)

Editors' Note: Previous reports of hepatitis associated with animal handlers appeared in MMWR, Vol. 10, No. 42, October 27, 1961, and Vol. 10, No. 35, September 8, 1961.

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Social Welfare: Myth and Fact

US DHEW PHS Public Health Reports 77(2): 182, February 1962.

Myth: Public assistance often goes to "chiselers."

Fact: About 5-1/2 million of the 7-1/4 million persons on public assistance in this country are children, or are aged, blind, or markedly disabled and obviously not "chiselers." Studies show the incidence of fraud in public assistance to be less than 2% in Chicago and 1.3% in California.

Myth: Aid to dependent children encourages illegitimacy.

Fact: One out of eight illegitimate children in the country receives assistance through the aid to dependent children program. Of the 2.7 million children in the program, illegitimate children account for about 20%.

According to a study of families receiving ADC help in 1958, the average number of children in families in which the father was not married to the mother was 2.2. This was less than the average number for families in which the father was dead, incapacitated, divorced or separated from the mother, or absent in any other circumstance, including desertion.

Myth: Public welfare perpetuates dependency. People flock to the State or city that will give them relief; there they stay on relief indefinitely.

Fact: The average length of time even a mother with small children receives aid to dependent children is only 2-1/4 years. Census figures clearly show that people move from places where work is scarce to those where work is available. Studies in New York State and Illinois of newcomers who have become recipients show that they obtain assistance for an average of only 1 year.

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Public Health Reports Note - Approximately 75,000 power mower accidents occur in the nation each year, according to the U. S. Department of Agriculture. About 90 percent involve the rotary-type mower, 70 percent result from finger-or-toe contact, and 30 percent from flying objects.

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RESERVE**SECTION**Leadership in Naval Reserve Medical Companies

NOTE: The following monograph was submitted by the Naval Reserve Medical Company 9-1, Saint Louis, Mo. It is a splendid example of the efforts of the staff members to effectively apply the concepts of leadership to their unit. —Naval Reserve Div., BuMed.

For more than a year, training officers of Naval Reserve Medical Companies have been directed to choose topics from Naval leadership curricula for at least 50% of company drills. The pertinent literature and films available set forth leadership principles and outline their application to the duties of commanding officers, division officers, and petty officers. Since no previous publication deals specifically with the application of leadership principles to a Naval Reserve Medical Company, this attempt was made to prepare one. The following ideas emerged:

Definition. Leadership is the art of accomplishing a mission through people. It is germane to our considerations, therefore, to recall the mission of a medical reserve company. This mission, briefly stated, is to provide trained physicians, administrators, nurses and technicians for active duty in time of emergency, to augment the regular component of the Navy Medical Department. This mission was never more urgent; leadership was never more essential to accomplish it.

At a recent seminar of Medical Company and Hospital Corps Division commanders in San Francisco, Major General William F. Dean, U.S. Army (Retired) addressed the group on the subject of leadership. In a moving discourse, he pointed out that exhaustive surveys had been made of a large number of proven military leaders of recent conflicts. Such men, he stated, were invariably found to possess three qualities: integrity, loyalty, and enthusiasm. To determine how these qualities are developed and utilized in medical companies is the subject matter of this monograph.

1. Integrity. This is a word which connotes a composite of attributes, first and foremost of which is moral responsibility. To be a leader one must be respected. One occasionally hears the remark, "I don't care what he does in his time off as long as he delivers the goods when I need him." Any thinking person will immediately see the fallacy in this reasoning, particularly as applied to a medical person. A doctor whose personal life is "pocked" with social failures, who is known to frequently drink to excess, or whose attitude toward professional ethics is known to be lax, cannot lead other medical personnel effectively.

Responsibility implies intelligence; being informed, knowing one's job. In this instance, it also means knowing what's going on in the regular component of the Navy Medical Department. Leaders in medical companies must, therefore, read available pertinent BuMed publications and the Naval Reservist as a suggested minimum. Responsibility in civilian endeavors also increases a man's effectiveness as a Naval leader. Many members of reserve companies hold professional rank in medical schools or executive positions in professional societies. This complements and adds to their stature as Naval Officers.

Discipline is part and parcel of integrity. It does not mean punishment, as many believe, but rather the orderliness and thoroughness expected of one's self and others, which produce readiness and self-confidence.

Integrity also smacks of a generous sprinkling of human understanding. This results in the ability to see the intrinsic worth of a man and to develop the best traits. In medical companies, as elsewhere, leaders must appreciate the special problems of individual members, yet not permit these to reduce overall effectiveness.

Integrity implies courage. Assuming the less pleasant job himself; avoiding the convenient small lie; honest execution of fitness reports; avoiding favoritism; these are features of medical leaders as much as of any others, and they require courage for their performance.

Command Decisions. A man of integrity is able to make even difficult decisions promptly. His intelligence gives him judgement. His moral responsibility makes many decisions obvious. His courage places principle before expediency. He is not impulsive. His decisions can many times be anticipated by his men because he is consistent. This contributes to efficiency in accomplishing a mission.

His decisions are thoughtful, then steadfast. Luke-warmness undermines authority. A leader will consider the opinion of his contemporaries, of the people his decision affects, and, finally his own conscience before making a decision. Having made it, he will implement it fairly and accept full responsibility for its effects.

Example. From the time we are old enough to observe the behavior of others we desire to imitate those we respect and admire. When leaders of a medical company are absent from drills or seldom go to active duty, this precedent permeates the unit. When leaders "perform," so do their men.

2. Loyalty. "Loyalty," said General Dean, "is a three dimensional quality. It extends upward, laterally, and downward." Upward loyalty implies subordination. The necessity for this in a military organization, or for that matter, in any other group which has a job to do, is readily apparent. In medical leaders, it means the failure to deride or criticize the orders or decisions of superiors. To tell a group of medical officers, "I don't know what our superiors are thinking of," does little to bolster the authority of the speaker. More specifically, upward loyalty means implementing the orders of superiors as if they were one's own. Upward loyalty also requires,

however, that superiors be privately informed of any discernible deleterious influences of directives, of morale or attrition problems, or of other local problems which threaten the effectiveness of the unit. Worthwhile ideas (medical, military, or otherwise) should also be forwarded to higher authority as a matter of loyalty.

Lateral loyalty implies the support and advancement of contemporaries. It motivates team work. In medical companies it may take the form of logistic support to other naval activities in the area. Making services available for physical examinations on other reservists is an example. Appropriate additional duties by individual members should be encouraged, for instance as medical school representatives, for the Navy. A regular inventory of program and readiness is essential to a medical company, and comparison with other units in the district and the nation is informative.

Loyalty downward is probably the most indispensable hallmark of a true leader. A personal interest in subordinates will, by force of circumstances, produce a prompt reflection of loyalty. General Dean emphasized that a man will "follow you to hell, if he knows you are for him." Personal recognition is all important. If a member of the company publishes a scientific paper, is certified by a specialty board, or receives other civilian or professional honors, the wise leader is lavish in recognizing his accomplishments. He also notes them on the member's fitness report and reminds that officer to include them on his annual qualifications questionnaire. An erstwhile esteemed skipper of ours, Rear Admiral Alphonse McMahon, often reminded us that whenever a member of a medical company is honored civilly or professionally, and he is generally known as a naval reservist, his feat reflects credit on the Navy. Downward loyalty also requires listening to suggestions of subordinates, and implementing those worthwhile. When a man fathers an idea, he will work like thunder to bring it to fruition.

Passing the word. A leader keeps his men informed. Men who are "in on things" feel (and perform) like part of the team. In medical companies leaders must keep members abreast of the changing role of our beloved Navy in the age of pushbutton warfare. To render the Reserve Doctor knowledgeable about radiation medicine, mass casualty planning, and biological and chemical warfare defense are realistic duties of leaders of these companies. Men returning from tours of active duty are valuable sources of information and they should address the company to bring it up to date on happenings in the regular component. The "word" on available duty, benefits to reservists, and other pertinent new materials should be brought out and discussed at drill, immediately as it becomes available.

(to be continued)

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Annual Meeting of the
Aerospace Medical Association

The Aerospace Medical Association will hold its annual meeting at the Chalfonte-Haddon Hall, Atlantic City, New Jersey during the period 9-12 April 1962.

Eligible (active status) inactive duty Naval Reserve Medical Department officers may earn four retirement points credit for attendance at military symposium sessions provided they register with the military representative present.

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NAVY DEPARTMENT

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